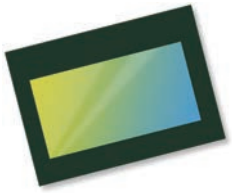


OX02A10 1.7MP product brief

lead free

available in a lead-free package

High Dynamic Range and LED Flicker Reduction for Display-Based Automotive Vision Systems

OmniVision's OX02A10 is a high-performance image sensor that is designed for the next-generation display-based camera monitoring systems for automotive applications. Built on OmniVision's 4.2 µm OmniBSI™ split-pixel technology for exceptional high dynamic range (HDR), the OX02A10 offers best-in-class low-light performance and represents the automotive industry's leading LED flicker-reduction solution.

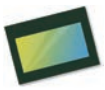
The OX02A10 achieves 110 dB HDR while guaranteeing LED pulse capture. This allows the automotive cameras to simultaneously capture bright and dark scenes, providing excellent performance in the most demanding lighting conditions. The OX02A10 supports 1820 x 940 resolution in a 1:2 aspect ratio at 60 frames per second (fps), making it ideally suited for wider aspect ratio e-mirror applications.

Additionally, the sensor's on-chip combination algorithm reduces the output data rate for easier data transition and back-end processing. The OX02A10 comes in a AEC-Q100 Grade 2 qualified automotive chip-scale package (a-CSP™).

Find out more at www.ovt.com.

OmniVision

OX02A10



Applications

- Automotive
  - 360° Surround View System
  - Rear View Camera
  - Lane Departure Warning / Lane Keep Assist
  - Blind Spot Detection
  - Night Vision
  - Pedestrian Detection
  - Traffic Sign Recognition
  - Camera Monitoring System
  - Autonomous Driving
  - E-Mirror

Product Features

- AEC-Q100 grade 2 qualified
- support for image size:
  - 1824 x 940
  - VGA
  - QVGA and any cropped size
- OmniHDR®-S technology
- high sensitivity
- safety features
- low power consumption
- image sensor processor functions:
  - lens correction
  - defective pixel cancelation
  - HDR combination and tone mapping
  - automatic black level correction
- supported output formats: RAW
- horizontal and vertical sub-sampling
- serial camera control bus (SCCB) for register programming
- high speed serial data transfer with MIPI CSI-2, parallel 12-bit DVP output
- external frame synchronization capability
- embedded temperature sensor
- one time programmable (OTP) memory
- support for LED flicker reduction (LFR) function

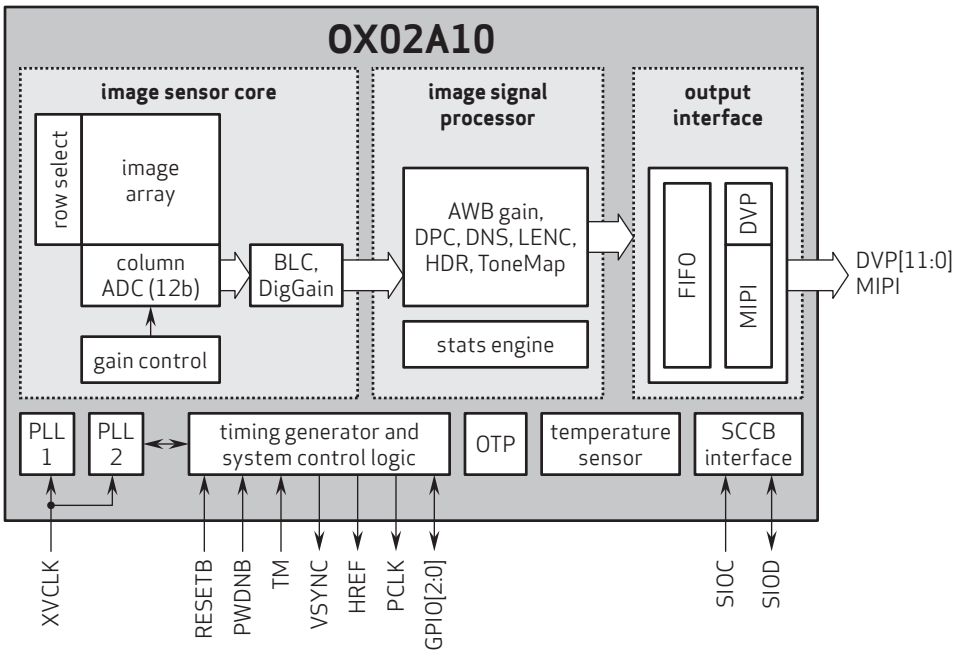
Ordering Information

- **OX02A10-E85Y-LD** (color, lead-free) 85-pin a-CSP™, with DAR coating, rev 1D, packed in tray with protective film (tab top left)
- **OX02A10-E85Y-MD** (color, lead-free) 85-pin a-CSP™, with DAR coating, rev 1D, packed in tray with protective film (tab top right)
- **OX02A10-E85Y-ND** (color, lead-free) 85-pin a-CSP™, with DAR coating, rev 1D, packed in tape & reel with protective film (tab top right)
- **OX02A10-E85Y-OD** (color, lead-free) 85-pin a-CSP™, with DAR coating, rev 1D, packed in tape & reel with protective film (tab top left)

Technical Specifications

- **active array size:** 1824 x 940
- **maximum image transfer rate:**
  - **full resolution combined:** 60 fps
- **power supply:**
  - **analog:** 3.14 - 3.47V
  - **digital:** 1.425 - 1.575V
  - **DOVDD:** 1.7 - 1.9V
  - **AVDD:** 1.7 - 1.9V
- **power requirements:**
  - **active:** 450 mW
  - **standby:** 100 µW
- **temperature range:**
  - **operating:** -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- **output interfaces:** 12-bit DVP, MIPI CSI-2
- **lens size:** 1/2.09"
- **lens chief ray angle:** 19°
- **output formats:**
  - 20-bit combined RAW
  - 12-bit compressed combined RAW
  - separated 12-bit RAW
  - 2x12 bit compressed RAW
  - 16-bit log domain combined RAW
- **scan mode:** progressive
- **shutter:** rolling shutter
- **pixel size:** 4.2 µm x 4.2 µm
- **image area:** 7711.2 µm x 3998.4 µm

Functional Block Diagram



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